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(54) Title: METHOD FOR PRODUCING OPTICALLY ACTIVE CARBOXYLIC ACID

(57) Abstract: A method for producing a desired optically active carboxylic acid with a high optical purity, wherein a complex catalyst used can be recovered and reused as an aqueous solution. The method contains the step of subjecting an  $\alpha,\beta$ -unsaturated carboxylic acid in water or a mixed solvent of water and a water-insoluble organic solvent in the presence of a sulfonated BINAP-Ru complex represented by the formula [3]:  $[\text{RuX}(\text{arene})\{\text{SO}_3\text{R}\}_2\text{BINAP}]^+ \text{X}^-$  [3] wherein X represents a chlorine atom, a bromine atom or an iodine atom, arene represents a benzene or an alkyl-substituted benzene, M represents an alkaline metal atom, and BINAP represents 2,2'-bis(diphenylphosphine)-1,1'-binaphthyl to an asymmetric hydrogenation. The sulfonated BINAP-Ru complex can be recycled.



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